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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/652,291	08/31/2000	Gaurav Sharma	XER 2 0330 D/99421	4239
7590	01/29/2004		EXAMINER	
Albert P Sharpe III Esq Fay Sharpe Fagan Minnich & McKee LLP 1100 Superior Avenue 7th Floor Cleveland, OH 44114-2518			LU, TOM Y	
			ART UNIT	PAPER NUMBER
			2621	
			DATE MAILED: 01/29/2004	

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/652,291	SHARMA ET AL.
	Examiner	Art Unit
	Tom Y Lu	2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 19 November 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-18 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment and written response filed on November 19, 2003 has been entered.
2. Claims 1-18 are pending.

Response to Arguments

3. Applicant's arguments filed November 19, 2003 have been fully considered but they are not persuasive.

The Travernier reference:

Applicant argues Travernier only teaches printing two images on both sides of a transparent substrate, where applicant's system teaches printing two images on both sides of a non-transparent paper. Applicant argues on a perfectly transparent substrate, the result of printing on two sides is like superposing two prints on the same side. Just because the images are printed on two sides, does not mean that the moiré from them is not visible when viewing from one side. The images printed on two sides of a transparent substrate do not have independent utility. Applicant claims his system uses a non-transparent paper document wherein the printed images independently excluding viewing of the intended watermark. Only through back-lit interference of the respective images can the watermark be seen. In summary, applicant argues such independent utility of the images themselves on the front and back side of the documents is distinguishable from the teachings provided in Travernier.

Upon further review of specification, and in light of applicant's arguments, the examiner respectfully disagrees for the following reasons. First of all, there are only 3 types of substrate materials, transparent, translucent and opaque. Applicant amended claims to be a non-transparent

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paper, which rules out the possibility of transparent and opaque because the watermark is a show-through pattern. Therefore, only translucent is left, and the examiner herein defines non-transparent as translucent. Travernier discloses printing images on both sides of a transparent or *translucent* substrate, column 5, line 57. In addition, Travernier discloses the substrate is a security document, column 7, line 47, and such security document is mentioned at column 1, line 24 to be security paper. As a result, Travernier discloses the limitation of printing images on both sides of a “non-transparent paper”. In claims 1, 11, 14, and 17, applicant emphasizes the watermark cannot be seen upon front-lit illumination, only first and second images are presented respectively upon front-lit illumination. The examiner would like to point out the emphasis stated by the applicant is simply the natural characteristics of paper, and since Travernier discloses use of paper, all of these limitations recited in the claims are inherently satisfied.

4. Upon entry of the amendments, 35 U.S.C. 112 1st Paragraph rejection of Claims 6-9 and 17-18 have been withdrawn.

5. Upon entry of the amendments, 35 U.S.C. 112 2nd Paragraph rejection of Claim 3-5 and 16 have been withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 9-11, 13-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Travernier et al (5,824,447).

- a. Referring to Claim 1, Travernier discloses printing a first image on a first side of the document in a first halftone pattern; and printing a second image on a second side of the document in a second halftone pattern (Travernier at column 5, lines 40-60, teaches printing halftone images on the both side of a translucent substrate) present first and second images upon front-lit illumination respectively (natural paper characteristics, see explanation in paragraph 3 above), and wherein the first and second patterns are disposed to form a recognizable marking distinct (Travernier at column 9, lines 25-26, teaches the halftone images on the both sides of the transparent substrate are screened at a different angle to create a visible moiré pattern, such moiré pattern corresponds the security feature Travernier describes at column 5, lines 42-43, as a watermark) from the first and second images upon illumination from a show-through light source (Note the halftone images are printed on a transparent substrate. Therefore, in order to view the resulted moiré pattern a show-through light source is inherently required).
- b. Referring to Claim 9, Travernier discloses wherein the said recognizable marking is produced through a local angle shift of printed halftone dots (Travernier at column 9, line 25, discloses the halftone images are shifted by a different angle).
- c. Referring to Claim 10, Travernier discloses wherein the printings comprise a color printing (Travernier at column 6, line 24, teaches a color printing).
- d. With regarding to Claim 11, the only difference between Claim 11 and Claim 1 is Claim 11 calls for additional limitation of “a selective overlay”, which Travernier at column 9, line 24, discloses the *same portion* of the image can be printed on both sides, which implies the “selective overlay”.

- e. Referring to Claim 13, Travernier discloses wherein the second image adjustment comprises angle or frequency shifting between the first and second images (Travernier at column 9, line 25, discloses the halftone images are shifted by a different angle)
- f. With regarding to Claim 14, the only difference between Claim 14 and Claim 1 is Claim 14 calls for additional limitation of “wherein the watermark is unrecognizable from either images alone upon illumination by a front light source”. Travernier teaches the moiré pattern is a result of *two* halftone images printed on the both sides of a transparent substrate. Therefore, it is inherently understood that the moiré pattern is unrecognizable from either images alone upon illumination by a front light source.
- g. As applied to Claim 15, which is representative of Claim 18, Travernier discloses wherein the halftone dots are relatively shifted by at least one of phase, angle or frequency (Travernier at column 9, line 25, discloses the halftone images are shifted by a different angle).
- h. Referring to Claim 16, Travernier discloses wherein the watermark is primarily recognizable in a reasonably large and relatively uniform area of overlap between the first and second image (Travernier at column 9, lines 25-26, teaches the moiré pattern is visible based on the overlap portion of the two halftone images).
- i. With regarding to Claim 17, the only difference between Claim 17 and Claim 1 is Claim 17 calls for additional limitation of “back-lit illumination”. As it explains in Claim 1, an illumination light source is needed to view the moiré pattern. In addition, it is inherently known to put a light source behind the substrate in order to view the moiré pattern. With regarding to the limitation of “wherein the marking is not

recognizable upon only front-lit illumination”, Travernier teaches it takes two halftone images to construct a moiré pattern. Therefore, the moiré pattern will not be visible when there is only one side of halftone image is viewed upon a front-lit illumination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2-5 and 12 are rejected under 35 U.S.C. 103(a) as being obvious over Travernier in view of Wang (U.S. Patent No. 6,252,971 B1).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention “by another”; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was

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made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

All the arguments and applicability in paragraph 3.a are incorporated herein.

- a. As applied to Claim 2, which is representative of Claim 12, Travernier at column 9, lines 21-26, teaches producing a recognizable marking through printed halftone images. However, Travernier does not disclose such recognizable marking is produced through a local phase shift of printed halftone dots. Wang at column 3, lines 9-29, discloses produce a visible watermark through a local phase shift of printed halftone dots as shown in figures 3-7. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to create a recognizable marking through a local phase shift of printed halftone dots. One of ordinary skill in the art would have been motivated to do this because Travernier at column 9, lines 19-21, discloses “all imaginable digital image manipulations are possible and can be implemented to provide security features in the printed document”, which means producing the recognizable security feature such as watermark through a local phase shift as described in Wang is applicable in Travernier. Moreover, Wang at column 2, lines 26-29, discloses “information hidden by stochastic screens are based on the cluster-to-clusters correlation, so that detection of invisible watermarks will be easier than the pixel-to-pixel correlation”.
- b. Referring to Claim 3, Wang teaches wherein the first and second halftone patterns are obtained by utilizing a first and a second clustered halftone screen wherein the second halftone screen incorporates a phase shift in dot pattern in the shape of the said recognizable marking (Wang at column 3, lines 14-28, teaches figure 3 shows a

checkerboard halftone pattern created by a regular 45-degree cluster halftone screen.

Figure 4 shows another checkerboard pattern created by a halftone screen having four slightly stretched columns 150 in the middle section. Due to the pitch difference between the regular columns 130 and the slightly stretched columns 150, the phase, which represents the transition between white and black, has changed from in phase, zero phase shift, to opposite phase, π phase shift. And an example of the visible watermark is shown in figure 7).

- c. Referring to Claim 4, Wang teaches wherein the phase shift in the second halftone screen comprises a shift of 180° over the embedded watermark pattern (Wang at column 3, lines 30-34, teaches π phase shift, which is a shift of 180°).
 - d. Referring to Claim 5, Wang teaches wherein the watermark comprises significant local variation in brightness resulting in a pattern clearly visible to the human eye (Wang shows that in figure 7, column 4, lines 31-44).
8. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Travernier in view of Muir (U.S. Patent No. 5,202,772).

- a. Referring to Claim 6, Travernier discloses creating a security feature such as moiré pattern through angle shifting. However, Travernier does not teach such angle shifting would have a frequency shift effect, which Muir discloses at column 3, lines 13-17. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to know a recognizable marking, such as a moiré pattern, is produced through a local frequency shift of the printed halftone dot. One of ordinary skill in the art would have been motivated to do this because angle shifting alters the

visibility of the moiré pattern by shifting the beat patterns from low frequency to high frequency as taught by Muir at column 3, lines 13-17.

- b. Referring to Claim 7, Travernier teaches one of the halftone images is screened at different angle. By implying Muir's frequency shifting technique, such image is frequency shifted.
- c. Referring to Claim 8, Travernier at column 9, line 26, teaches the recognizable marking is a moiré pattern.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

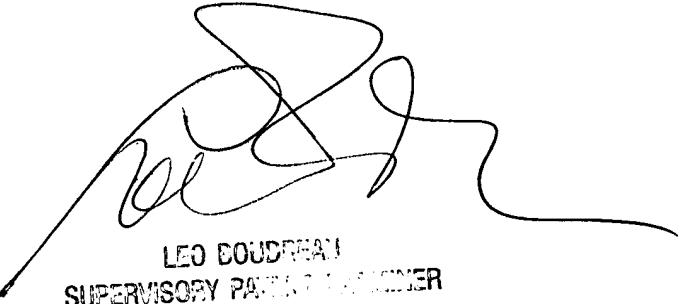
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom Y Lu whose telephone number is (703) 306-4057. The examiner can normally be reached on 8:30AM-5PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Tom Y. Lu



LEO H. BOUDREAU
SUPERVISORY PATENT EXAMINER
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